

## **Good Neighbours Matter: Economic Geography and the Diffusion of Human Rights**

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### **Abstract:**

We investigate the geo-political and economic aspects of human rights (HR) performance using multi-country panel data. HR performance depends on relative levels of economic development and spatial proximity to 'good' and 'bad' neighbours. We test for basic effects of income, and apply spatial weighting models, to analyse the neighbours' impact on HR levels, treating this impact as partly endogenous. We take into account size and distance, to compare each country's HR performance with what would be predicted from a weighted average of its neighbours' performance. There are (a) geographical clusters and (b) size and proximity effects for HR performance.<sup>5</sup>

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## 1 Introduction

The protection of civil and political rights varies across time and space. In explaining this variation, the extant cross-national and quantitative literature on human rights has looked at socio-economic factors either explicitly (e.g. Mitchell and McCormick, 1988; Henderson, 1993; Heinisch, 1998; Abouharb and Cingranelli, 2007; Landman and Larizza, 2009; Landman, Kernohan, and Gohdes, 2012) or implicitly as control variables alongside different sets of social, political and cultural explanatory variables (e.g. Poe and Tate, 1994; Poe, Tate and Keith, 1999; Camp Keith, 2012). Model estimations in the literature also include controls for fixed effects or for regional and sub-regional variation typically as robustness checks (e.g. Landman, 2005a; Landman and Larizza, 2009). Absent from this kind of modelling of human rights performance, however, is any attention to processes of spatial diffusion, where the human rights practices of one state have an influence on the human rights practice of another. In this paper, we focus explicitly on the economic geography and diffusion of human rights performance with respect to physical integrity rights using a combined human rights factor score, regional dummy variables, and spatial weightings for both the size and proximity of neighbours.

As an initial window into our topic, a simple comparison of trends in human rights performance across world regions, over the past three decades, shows that there are two broad 'clubs'. In 1980, one club consisted of Western Europe, North America and Oceania, and the other comprised the rest of the world. Between 1980 and 2004 the only major change occurred in the Central and Eastern European Countries (CEECs), which have moved from the 'bad' convergence club to the 'good' (note some Latin American countries have also improved significantly). We argue that these kinds of trends may reflect both income and spatial factors. For example, our human rights factor score shows a clear relationship with levels of national income. Ranking 149 countries in 2004 according to GDP per capita, 19 out of the top 20 countries are also in the top 30 in terms of human rights. At the other end of the table, however, while several out of the bottom 20 countries in terms of per capita GDP also rank badly for human rights - Congo, Burundi, Ethiopia, Chad, Nepal - it is also noticeable that Mali is 34th in terms of human rights, while Ghana, Burkina Faso and Guinea Bissau are in the top 60. Just as economists have long recognised that certain poor countries (such as Sri Lanka and Cuba) have managed to provide relatively good healthcare and educational levels, we wish to analyse regional patterns in human rights, and the extent to which these vary for reasons other than simply income level differences.

While taking such income levels into account, we examine the degree to which there may be good or bad human rights neighbourhood effects. Our modelling examines the human rights effect of the relative size and proximity of neighbouring states. In particular, we are interested to examine the following issues. First, to what degree does having a human rights 'good' neighbour affect a country's level of human rights performance? Second, to what degree does distance from such a good neighbour affect a country's level of human rights performance? Third, are clusters of good human rights performers a function of both their level of income and proximity to good neighbours?

In order to provide answers to these questions, the paper is structured in several sections. Section 2 examines the literature on diffusion and examines arguments on the possible effects of intentional and unintentional diffusion on the spread of human rights performance. Section 3 contains a brief discussion of the historical spread and regional patterns of human rights, in particular outlining the role of international human rights standards and treaties. Section 3.1 sets out some stylised facts and statistical tests suggestive that there may be significant economic and spatial relationships in human rights performance, and establishes some the broad trends within and between global regions. Section 4 outlines the full method for spatial econometric analysis. Section 4.1 discusses methodological issues relating to the data and the associated problems of estimation.

Section 4.2 reports the results of the spatial econometric analysis and Section 5 concludes with a discussion of some of the significant implications of spatial diffusion identified in this paper. Appendix 6 contains a detailed description of the database of human rights and other indicators.

## 2 Diffusion of Human Rights

The literature on diffusion from international relations, comparative politics and political economy is based on the assumption that nation states do not exist in autarky and that developments in one country are influenced by and can influence developments in another country. Such cross-national diffusion can be the result of both intentional and unintentional interactions of states. Intentional activity such as trade, direct foreign direct investment (FDI), overseas development assistance (ODA), international regimes, and coercion and unintentional interaction such as proximity, natural processes of 'contagion', and globalisation (and all that it entails), can both lead to the diffusion of ideas, norms, practices, and policies (see Young, 1980; 1999a, 1999b; Whitehead, 1996; Kopstein and Reilly, 2000; Landman, 2005; 2008; Dobbin, Simmons and Garrett, 2007). The underlying logic to explanations of intentional diffusion is based on the idea that one state or group of states seeks to change the behaviour of another state or group of states through a concerted set of actions and policies that are specifically designed to change the structure of incentives (Simmons, Dobbin and Garrett, 2008). Coercive measures for changing behaviour include military intervention, peace-keeping, democracy promotion, aid conditionality, economic sanctions, regional integration, and other measures available to powerful states. Non-coercive measures for change include the use of soft power, advocacy, persuasion, and networks of transnational non-governmental organisations, which form alliances and operate between states and inter-governmental organisations in an effort to aggregate interests and bring about positive change in pursuit of them (Keck and Sikkink, 1998; Risse, Ropp and Sikkink, 1999; 2013; Tarrow, 2005; Tilly and Tarrow, 2012).

Awareness of the importance of human rights has increased progressively since the 1948 Universal Declaration of Human Rights. The variability in human rights practices has become an additional area that may be susceptible to diffusion effects. As in other areas where diffusion effects are examined, the underlying assumption is that some form of concerted effort over time by one set of states will yield a better protection of human rights in another set of states. As well as the intentional processes of diffusion in the field of human rights, the world has witnessed a proliferation of international human rights law that has grown in both breadth (i.e. the number of rights that receive explicit legal protection) and depth (i.e. the number of states participating in the international regime) (Landman, 2005b; 2013). This growth in international human rights law has been buttressed by states that have increasingly tied human rights 'conditionality' to their aid, trade and foreign policies and international non-governmental organisations that are able to connect domestic mobilisation for human rights to intergovernmental agencies and organisations that engage with states in an effort to change their human rights practices. These developments are complemented by an increasing standard of accountability by which the performance of states is now judged (see Fariss, 2014). To date, there is mixed evidence for intentional diffusion effects concerning the impact of FDI (Meyer, 1996; Richards, Gelleny and Sacko, 2002; Landman, 2005a; Blanton and Blanton, 2006; 2009), ODA (Knack, 2004; Landman, 2005a), the international human rights regime (Camp Keith, 1999; Hathaway, 2002; Hafner Burton and Tsuitsui, 2005; Neumayer, 2005; Landman, 2005b; Simmons, 2009; Smith-Cannoy, 2012; Hafner-Burton, 2013), and transnational advocacy networks (Risse, Ropp and Sikkink, 1999; 2013; Landman, 2013).

Beyond the intentional dimensions of diffusion, there is a dearth of analysis on the unintentional processes of diffusion: the degree to which a country's protection of human rights is a function of patterns of economic development and the economic geography of the world. States are part of a global economic system in which both levels of wealth and spatial proximity to 'good neighbour' states vary. Neighbours can be large and small, rich and poor, and 'good' or 'bad' protectors of human rights. It is not unreasonable to expect that the human rights practices of one state may have an impact on the human rights practices of other states, particularly if one takes into

account the relative size of neighbouring states. Thus, in addition to general income effects around various 'clubs' of states, identified briefly above and discussed in more detail below, we also expect two kinds of unintentional diffusion effects: (1) states that are proximate to large and 'good' human rights protectors, *ceteris paribus*, ought to have a higher probability of being a good human rights protector and see improvements over time; (2) states that are proximate to large and 'bad' human rights protectors ought to have a lower probability of being a good human rights protector and see fewer improvements over time. The construction of the data set, methods of estimation and empirical results that provide support for these two main propositions are now discussed in turn.

### 3 Regional Patterns of Human Rights

As a simple introductory procedure to check on the plausibility of our analysis, Figures 1(a)-(f), below, present descriptive statistics on the geographic history of HR performance, which suggest that regional levels of HR can change significantly in relative terms over time. In Figures 1(a) and 1(b) we plot the HR performance in the commonwealth of independent states (CIS) after the Soviet breakup: while these countries showed some diversity immediately after the Soviet downfall, there appears to have been a subsequent convergence, possibly in a worsening direction. Likewise, Figures 1(c) and 1(d) show worsening trends in the Middle East (MEAST) and Sub-Saharan Africa (SSA).

Figure 1(f) shows the trends in the regional average HR performance over the thirty-year period, as well as intra-regional variation. Comparing means of the various regions shows that there appear to be two 'clubs' in 1980. One club consists of Western Europe/ North America and Oceania, and the other the Rest of the World. Between 1980 and 2010 the only major real change is the Central and Eastern European Countries (CEECs), which move from the 'bad' convergence club to the 'good'. Latin America has shown a modest improvement, reflecting the fall of dictatorships and military authoritarian regimes, while the Middle East/North Africa, Asia and the CIS countries have actually worsened, particularly in the period to the mid-1990s (with some recovery since). We find strong positive correlations between HR and per capita GDP. This is consistent with other studies that provide strong evidence that richer countries supply their citizens with better rights protection (see, e.g. Mitchel and McCormick, 1988; Poe and Tate, 1994; Poe, Tate and Keith, 1999; Landman and Larizza, 2009; Landman et al 2012), but at the same time, there is weaker evidence that HR benefit economic growth (Blume and Voight, 2007; see also Norris 2012). Although we did not find a clear relationship between changes in HR and changes in GDP, this may indicate that the relationship between GDP and HR is a long-term one, not short-term in keeping with the social capital argument favoured by Sen.

Figures 1(a)-(f): Trends in the IHRFACTOR human rights index across countries, grouped by region.

Figure 1(a)

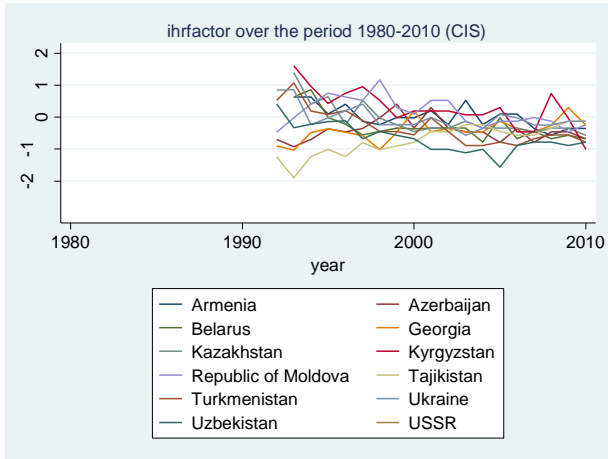


Figure 1(b)

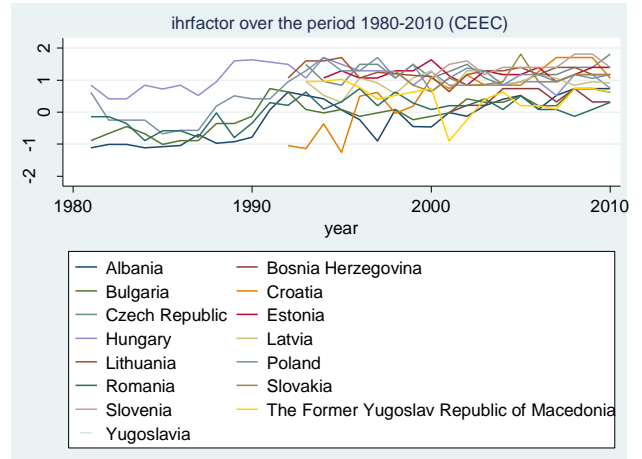


Figure 1(c)

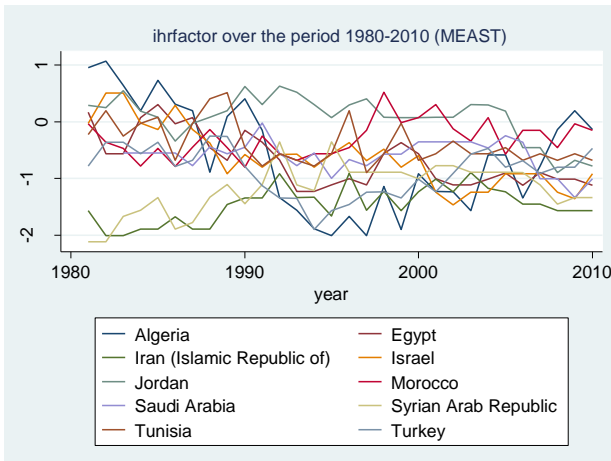


Figure 1(d)

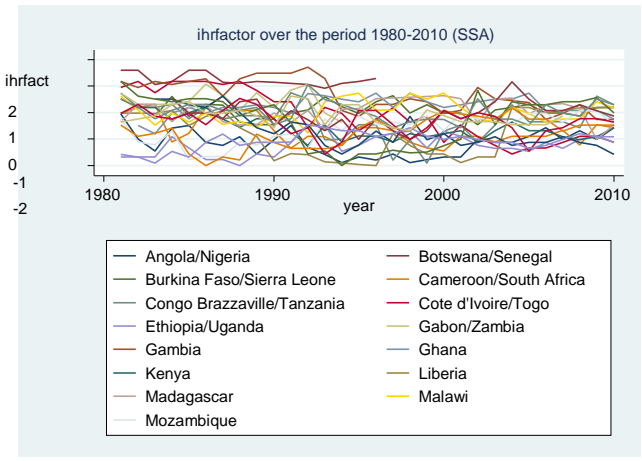


Figure 1(e)

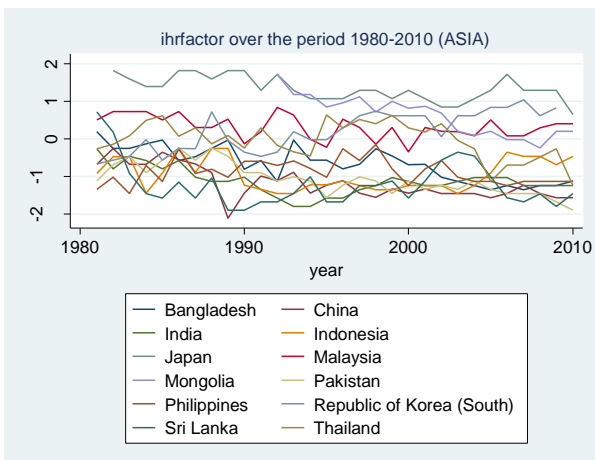
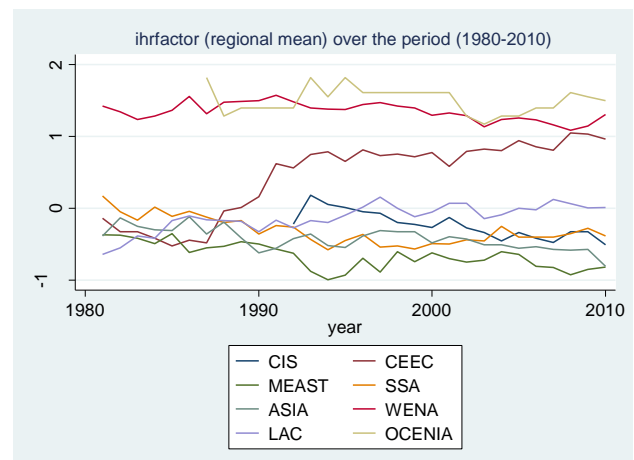


Figure 1(f)



### 3.1 Results from Non-spatial Regressions

In order to examine these issues further, in Table 1 we regress HR performance from three time periods (1981-1990, 1991-2000, and 2001-2010) on a series of regional dummies. The dummy for Western Europe/North America (WENA) was dropped so that the regressions compare all other regions with this advanced set of countries. Consequently, the constant (which decreases between the earlier and later periods) represents the average level for WENA countries, while other values represent the difference in HR performance from the WENA countries.

**Table-1: Regional differences in HR performance (1981-2010)**

| Ihrfactor               | 1981-90   | 1991-2000 | 2001-10   |
|-------------------------|-----------|-----------|-----------|
| SSA                     | -0.454*** | -0.657*** | -0.500*** |
| Asia                    | -0.656*** | -0.809*** | -0.626*** |
| CEEC                    | -0.479*** | 0.216***  | 0.605***  |
| CIS                     |           | -0.311*** | -0.323*** |
| LAC                     | -0.505*** | -0.439*** | -0.109*   |
| MEAST                   | -0.851*** | -1.112*** | -0.889*** |
| OCEANIA                 | 1.372***  | 1.429***  | 1.252***  |
| _cons                   | 0.313***  | 0.229***  | 0.130***  |
| N                       | 1510      | 1630      | 1630      |
| Adjusted R <sup>2</sup> | 0.126     | 0.137     | 0.170     |

\*= significant at 10% level, \*\*= significant at 5% level, \*\*\*= significant at 1% level

The first thing to note is that regional dummies are all significant, with the Middle East (MEAST) and Asia showing particularly poor performance. We note a change in sign on the CEEC coefficient, which implies that regions can also change performance significantly in relative terms. In fact, the CEECs did improve markedly in this respect, where estimates change from negative coefficients for the period 1980-1989 to positive coefficients in the two latter periods; a change that is in line with expectations given the transition away from authoritarianism after the fall of the Berlin Wall and collapse of the Soviet Union from 1989. Since the regional dummies are all significant, one would expect country-specific effects on HR performance. So we regressed levels of HR performance on a number of socio-economic variables along with country and time dummy variables. Summary statistics on the socio-economic variables are provided in Table 2, below.

**Table-2: Summary statistics**

| Variable             | Obs  | Mean   | Std.Dev | Min    | Max    |
|----------------------|------|--------|---------|--------|--------|
| state id             | 2730 | 46     | 26.272  | 1      | 91     |
| Year                 | 2730 | 1995.5 | 8.657   | 1981   | 2010   |
| Ln GDP               | 2730 | 8.002  | 1.657   | 3.912  | 11.381 |
| Ln Land inequality   | 2730 | 52.081 | 22.419  | -0.727 | 100    |
| Ln Income inequality | 2730 | 43.814 | 6.960   | 24.77  | 64.75  |
| Polity               | 2730 | 3.444  | 6.956   | -10    | 16.147 |
| Domestic conflict    | 2730 | 3.277  | 2.646   | -4.725 | 12     |
| Catholic             | 2730 | 0.329  | 0.470   | 0      | 1      |
| Muslim               | 2730 | 0.197  | 0.398   | 0      | 1      |
| Ihrfactor            | 2488 | 0.011  | 0.998   | -2.115 | 1.818  |

For the regressions we need a balanced panel. Since there are no data for the CIS countries before 1992 we had to drop these countries from the sample hence our new sample comprises a panel of 91 countries between 1981 and 2010. Results of models without spatial interactions are shown in Table 3, below.

**Table 3: Panel data models without spatial interaction effects (1981-2010)**

| Determinants                          | (1)<br>Pooled OLS      | (2)<br>Spatial Fixed effects | (3)<br>Time Period Fixed Effects | (4)<br>Spatial and Time Period Fixed Effects |
|---------------------------------------|------------------------|------------------------------|----------------------------------|--|
| Domestic conflict                     | -0.158***<br>(-22.702) | -0.067***<br>(-10.737)       | -0.191***<br>(-27.837)           | -0.094***<br>(-14.538)                       |
| Ln GDP                                | 0.196***<br>(15.514)   | 0.025<br>(0.555)             | 0.138***<br>(11.268)             | 0.352***<br>(6.674)                          |
| Polity                                | 0.030***<br>(11.850)   | 0.027***<br>(10.361)         | 0.045***<br>(17.663)             | 0.045***<br>(16.202)                         |
| Ln Land inequality                    | -0.006***<br>(-9.288)  | 0.0128***<br>(7.485)         | -0.008***<br>(-11.709)           | 0.002<br>(1.578)                             |
| Intercept                             | -0.842 ***<br>(-6.779) |                              |                                  |  |
| sigma^2                               | 0.631                  | 0.278                        | 0.553                            | 0.251  |
| R-squared                             | 0.534                  | 0.098                        | 0.590                            | 0.175  |
| Rbar-squared                          | 0.533                  | 0.097                        | 0.590                            | 0.174  |
| N                                     | 2730                   | 2730                         | 2730                             | 2730   |
| Log L                                 | -3244.2                | -2126                        | -3063.9                          | -1985.2                                      |
| LM test no Spatial Lag, Prob          | 118.768, 0             | 62.243, 0                    | 85.443, 0                        | 38.333, 0                                    |
| Robust LM test no Spatial Lag, Prob   | 49.065, 0              | 25.400, 0                    | 0.120, 0.729                     | 3.593, 0.058                                 |
| LM test no Spatial error, Prob        | 373.233, 0             | 93.639, 0                    | 153.891, 0                       | 34.788, 0                                    |
| Robust LM test no Spatial error, Prob | 303.530, 0             | 56.797, 0                    | 68.567, 0.473                    | 0.048, 0.826                                 |

LR-test joint significance spatial fixed effects, degrees of freedom and probability = 2157.495, 91, 0

LR-test joint significance time-period fixed effect, degrees of freedom and probability =281.720,30, 0

Note: t-values in parentheses.

In almost all specifications of the non-spatial panel data model of Table 3, we found the level of HR to be significantly positively related to the level of income and Polity, and significantly negatively related with domestic conflict (see also Landman and Larizza, 2009). The classic- LM test proposed by Anselin (1988), or robust LM-test proposed by Anselin et al (1996) determines whether spatial lag model or the spatial error model is more appropriate than non-spatial panel data model. The classic-LM test rejects the hypothesis of no spatially lagged dependent variable and the hypothesis of no spatially auto-correlated error term at 5% as well as 1% significance, irrespective of the inclusion of spatial and/or time-period fixed effects. However, in case of robust-LM test the hypothesis of no spatially auto-correlated error and the hypothesis of no spatially lagged dependent variable can no longer be rejected at 5% as well as 1% significance, provided that time-period or spatial and time-period fixed effects are included (see Elhorst, 2010). The likelihood ratio (LR) test rejects the hypothesis that the spatial fixed effects are jointly insignificant (2157.4957, 91 [df],  $p < 0.01$ ). Similarly, the hypothesis that the time-period fixed effect are jointly insignificant is rejected

(281.7208, 30 [df],  $p < 0.01$ ). These results justify the extension of the model with spatial and time-period fixed effects (Baltagi, 2005).

Although we succeed in identifying regional differences in levels of HR performance in these non-spatial regressions, the spatial dependence observed above may not reflect a truly spatial process but merely the geographic clustering of the sources of the behaviour in question as neighbouring countries have shared or similar attributes. What we wish to try to capture is a country's HR performance relative to its neighbours, which may arise through a variety of potential geographical spillover or diffusion mechanisms. Hence, the following section focuses on a method for determining how human rights vary spatially.

#### 4. Establishing Spatial Effects

In order to capture a country's true HR performance relative to its neighbours, we need to establish a spatial effect. First, a regional pattern may reflect common causal factors, which happen to be concentrated in certain global regions. For example, in the case of property rights and the rule of law, Acemoglu et al (2005) argue that different patterns of colonisation have resulted in very different patterns: in those areas which European colonists found relatively empty, they instituted property laws and institutions which favoured fairly equitably the rights of all the new settlers, whereas where there was an existing large population and/or a valuable resource base to exploit, institutions were put in place which favoured the colonists at the expense of the indigenous (or imported slave) population. Nunn's (2007b) work on the role of slavery in determining bad institutions in Africa is in this same tradition. There are good reasons to believe that persistence of bad institutions may also apply in the case of human rights.

Countries in a region can also share a common culture, which may be more or less favourable to human rights (or interpret them in different ways to Western compilers of HR indices). Alternatively, there may be common causes in the sense of regional security crises. There may be rebellions by cross-border ethnic groups, such as the Kurds in Turkey and Northern Iraq. Civil wars may spread across borders (for example, the displacement of the Rwandan crisis in the 1990s to neighbouring Congo). Moreover, even though economic activity, such as GDP per capita, can have spatial patterns, we can correct for this by including GDP per capita in any spatial regressions. When we estimate the effect on HR in one country on the human rights of its neighbours, then any spillover in GDP can be controlled in our estimations.

Second, the alternative explanation of spatial patterns is that there are direct spillovers between HR performance in one country and its neighbours, or 'unintentional' diffusion effects. There is plenty of evidence of such diffusion, as can be seen in Latin America of the 1980/90s or the Middle East and North Africa today. A country which liberalises its political and legal system with no adverse effects (or maybe with benefit) is likely to have a positive influence upon other countries. We would expect this effect to be stronger, the closer the ties between countries' citizens, and the greater the similarities between the countries. In this way, there may be a 'gravity' type spatial spillover mechanism, since a country which is large and nearby will have more effect on its neighbours. These types of spillover effects and processes of spatial diffusion are modelled and estimated in the next section.

##### 4.1. Modelling Strategy

Our modelling strategy is to first look at economy and HR relationships, then at the issue of spatial clusters of HR performance (analogous to performance on standard measures of socio-economic progress), and then at gravity or neighbourhood effects in the spirit of international trade linkages, which demonstrate the importance of proximity. We develop a spatial econometric model based upon a panel of 91 countries between 1981 and 2010. A critical assumption here is that changes in

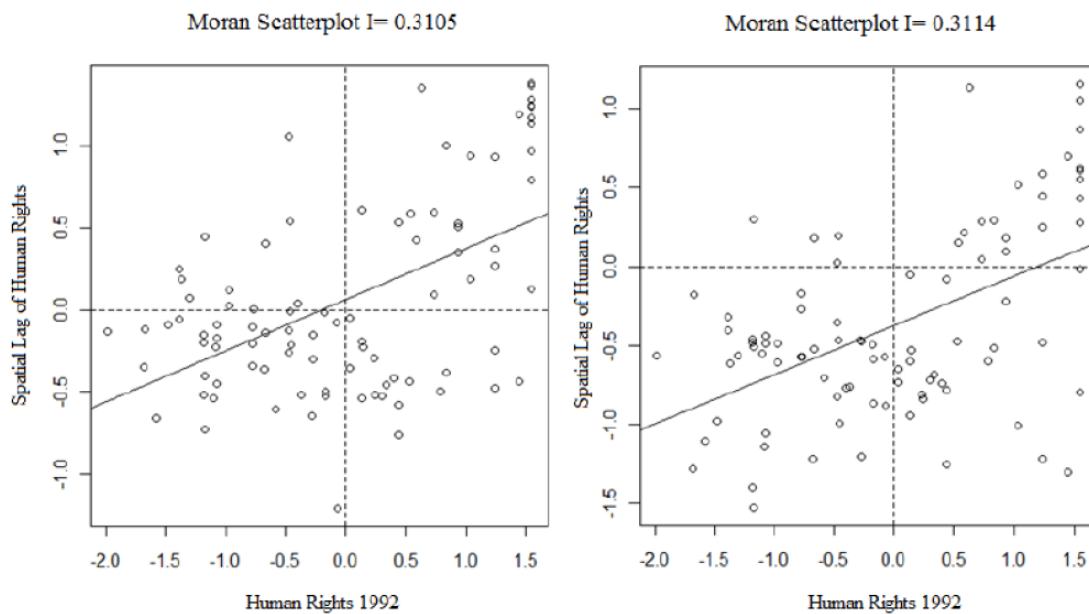


one country's HR performance may be correlated with performance in other countries, where the degree of correlation depends on the distance between the two countries. Such an assumption is common in spatial econometrics (see Arbia et al, 2010).

Spatial econometric models treat cross-border spillovers as a form of autocorrelation (in terms of distance rather than autocorrelation over time), where Moran's I statistic and the Local Indicator for Spatial Autocorrelation (LISA) are used to check the global and local autocorrelation, respectively. The Moran's I statistic is given by the following expression:

$$I_G = \frac{\sum_i \sum_j w_{ij} z_i z_j}{\sum_i z_i^2}, \quad (1)$$

**Fig-2**



**Note:** Moran's Scatterplots of Human Rights are based upon inverse squared distance and inverse squared distance times relative population

Figure 2, above, reports the results of Moran's I statistic for HR in 1992, regardless of the spatial structure imposed, and this variable shows a positive association between the original variable and its spatially lagged version. Figure 2 clearly indicates that HR performance should not be viewed as a randomly distributed variable, but rather as one that has systematic spatial attributes. The spatial autocorrelation for human rights is 0.3105 using our specification of the inverse of the squared distance and the population weighted measure of autocorrelation is 0.3114. This spatial autocorrelation suggests that countries with good HR performance are more likely to be close to each other. If this spatial dependence is reflected in the error term, regression results using standard econometric estimators, which ignore spatial dependence, will prove unreliable. We therefore use a spatial extension of the linear regression model.

As pointed out by Anselin, Gallo, and Jayet (2008), a spatial panel data model may contain a spatially lagged dependent variable known as spatial lag model with endogenous interaction effect or the model may incorporate a spatially autoregressive process in the error term known as spatial error model with interaction effects among the error term. A third model, advocated by LeSage and

Pace (2009), contains a spatially lagged dependent variable and spatially lagged independent variables known as spatial Durbin model with both endogenous and exogenous interaction effect. Formally, the spatial Durbin model is formulated as (see Elhorst, 2010):

$$Y_{it} = \delta \sum_{j=1}^n W_{ij} Y_{jt} + \alpha + X_{it} \beta + \sum_{j=1}^n W_{ij} X_{ijt} \theta + \mu_i + \gamma_t + \varepsilon_{it} \quad (2)$$

where  $Y_{it}$  is the dependent variable for cross-sectional unit  $i$  at time  $t$  ( $i=1, \dots, N$ ;  $t= 1, \dots, T$ ).  $\sum_j W_{ij} Y_{jt}$  stands for the interaction effect of the dependent variable  $Y_{it}$  with the dependent variables  $Y_{jt}$  in neighboring units, where  $W_{ij}$  is the  $i, j^{\text{th}}$  element of a pre-specified nonnegative  $N \times N$  spatial weights matrix  $W$  describing the arrangement of the spatial units in the sample.  $X_{it}$  a  $1 \times K$  vector of exogenous variables, and  $\beta$  a  $K \times 1$  vector of fixed but unknown parameters. The spatial Durbin model extends the spatial lag model with specially lagged independent variables where  $\theta$  is a  $K \times 1$  vector of parameters.  $\varepsilon_{it}$  is an independently and identically distributed error term for  $i$  and  $t$  with zero mean and constant variance.  $\mu_i$  denotes a country specific effect which control for all county-specific time-invariant variables whose omission could bias the estimates in a typical cross-sectional study.  $\gamma_t$  denotes a time-period specific effect which control for all time-specific effects whose omission could bias the estimates in a typical time-series study (Baltagi 2005). If  $\mu_i$  and/or  $\gamma_t$  are treated as fixed effects, the intercept  $\alpha$  can only be estimated under the condition/conditions that  $\sum_i \mu_i = 0$  and  $\sum_t \gamma_t = 0$ . An alternative and equivalent formulation is to drop the intercept from the model and to abandon one of these two restrictions (see Hsiao 2003, 33). We followed the latter in our estimation. We also adopted the bias correction procedure proposed by Lee and Yu (2010a). However such bias correction will have hardly had any effect if  $T$  is large (Elhorst, 2012).

Now one potential spatial weight matrix is expressed as the inverse of the squared distance between each pair of countries (distance between capitals) to account for the intuition that a given country is more related to those countries that are closer.

$$W = w_{ij} = 0 \text{ if } i = j, \quad (3)$$

$$W = w_{ij} = \frac{1}{d^2} \text{ if } i \neq j$$

where distance-only weight  $W$  is the spatial weight and  $d_{ij}$  denotes the geographical distance between capitals of any two countries  $i$  and  $j$ . In addition to distance, simple spatial weighting can also be done according to population size (using period average population), where it is likely that countries with a larger population have a greater impact on neighbouring countries.

$$W = w_{ij} = 0 \text{ if } i = j, \quad (4)$$

$$W = w_{ij} = \frac{1}{d^2} \times \frac{Pop_j}{Pop_i} \text{ if } i \neq j$$

where the distance and population-based weight  $W$  is a function of the inverse squared distance between country  $i$  and  $j$ , as well as the ratio of the population of country  $j$  to the population of country  $i$ . It is also possible to use a weighting scheme based on GDP (as in gravity modelling of trade); however, the main problem with this is that GDP may not be entirely exogenous, which could cause estimation biases in a spatial econometric model.

## 4.2. Results from Spatial Regressions

Anselin (1988) proposed the maximum likelihood (ML) estimator to produce reliable results when there is a spatially auto-correlated dependent variable. For panel estimates we used its extension

proposed by Elhorst (2010). Since in section 3.2 the non-spatial model was rejected on the basis of LM test, this section estimates a spatial model with/without country and time period fixed effects. A spatial Durbin model was also estimated to test whether it can be simplified to the spatial lag or spatial error model. We followed the row-normalization procedure of the spatial weights matrix for ease of interpretation.

In Table 4 we present the results of panel regressions without fixed effects. In column 1 and 2 of table 4, we used the distance-only weighting scheme, while in the next two columns we used a distance and population-based weighting scheme. In column 1 of table 4 the effect of per capita GDP and Polity on human rights is significant (at 1% level) and positive (0.142 and 0.031) as expected. Domestic conflict and land inequality are found to be significantly (at 1% level) and negatively (-0.150 and -0.006) correlated with HR. The variable W\*dep.var denotes the interaction effect of the level of HR in a country with the level of HR in neighbouring countries. The significant (at the 1% level) and positive (0.251) spatial coefficients on the W\*dep.var variable establishes that a neighbourhood effect exists. Hence, it would appear that ‘beacon’ countries can play an important role in disseminating good HR practice to neighbours, and by extension, from the same result, that rogue countries can potentially destabilize (even) virtuous neighbours.

**Table 4: Panel data models with spatially lagged dependent variable, No fixed effect (1981-10)**

| Determinants       | (1)<br>W1= dist       | (2)<br>W1=dist         | (3)<br>W2= popdist     | (4)<br>W2=popdist      |
|--------------------|-----------------------|------------------------|------------------------|------------------------|
| Domestic conflict  | -0.151***<br>(-21.68) | -0.145***<br>(-20.801) | -0.152***<br>(-22.644) | -0.144***<br>(-21.335) |
| Ln GDP             | 0.143***<br>(11.214)  | 0.150***<br>(11.647)   | 0.111***<br>(9.084)    | 0.123***<br>(9.999)    |
| Polity             | 0.032***<br>(12.378)  | 0.024***<br>(8.875)    | 0.035***<br>(14.124)   | 0.029***<br>(10.935)   |
| Ln land inequality | -0.006***<br>(-8.540) | -0.006***<br>(-8.248)  | -0.007***<br>(-10.025) | -0.006**<br>(-9.114)   |
| Catholic           |                       | -0.151***<br>(-4.268)  |                        | -0.213***<br>(-6.142)  |
| Muslim             |                       | -0.429***<br>(-10.284) |                        | -0.418***<br>(-10.321) |
| W*dep.var.         | 0.249***<br>(11.540)  | 0.253***<br>(11.641)   | 0.359***<br>(17.199)   | 0.366***<br>(17.242)   |
| intercept          | -0.477***<br>(-3.905) | -0.391 ***<br>(-3.152) | -0.044<br>(-0.372)     | 0.009<br>(0.076)       |
| R-squared          | 0.559                 | 0.576                  | 0.583                  | 0.601                  |
| Corr-squared       | 0.507                 | 0.532                  | 0.470                  | 0.492                  |
| Nobs               | 2730                  | 2730                   | 2730                   | 2730                   |
| Log L              | -3184.879             | -3131.399              | -3115.013              | -3056.083              |

In the model without fixed effects it is possible to include cultural or other variables, which may be largely invariant over time (see column 2 of Table 4). This is important, since the inclusion of these variables may help us interpret the degree to which our estimated spatial weightings are picking up regionally-varying historical or cultural factors. For this reason, we include both a dummy variable for Catholic culture and a Muslim dummy in the regression equation. The omitted variable can thus be described as “Protestants and others”. Inclusion of these variables did not change our findings and we can say that there are indeed regional spillovers, in addition to some spatially-varying cultural factors present. In columns 3 and 4 of Table 4 where distance and population-based weighting scheme was considered, the significant and positive spatial coefficients on the W\*dep.var variable establishes that size and proximity effect exists in a given countries relative progress in human rights performance. Our results appear robust since most of the estimated coefficients are little affected by the choice of distance-only weighting and distance and population-based weighting.

**Table 5: Panel data models with spatially lagged dependent variable, spatial and time period fixed effects (1981-2010), robustness check**

| Determinants  | (1)                    | (3)                    | (2)                    | (4)                    |
|---|------------------------|------------------------|------------------------|------------------------|
|   | W1= Dist               | W1= Dist               | W2=Popdist             | W2=Popdist             |
| domconflict   | -0.091***<br>(-14.178) | -0.091***<br>(-13.890) | -0.091***<br>(-13.767) | -0.095***<br>(-18.700) |
| Ln GDP  | 0.320***<br>(6.105)    | 0.319***<br>(5.968)    | 0.326***<br>(6.086)    | 0.291***<br>(7.143)    |
| Polity  | 0.044***<br>(15.880)   | 0.043***<br>(15.220)   | 0.044***<br>(15.620)   | 0.045***<br>(20.341)   |
| Ln land inequality  | 0.001<br>(0.742)       |                        | 0.001<br>(0.680)       |                        |
| Ln income inequality                                      |                        | 0.008<br>(1.603)       |                        | 0.003<br>(1.159)       |
| W*dep.var.  | 0.158***<br>(5.761)    | 0.181***<br>(6.662)    | 0.209***<br>(7.302)    | 0.251***<br>(9.491)    |
| sigma^2   | 0.246                  | 0.257                  | 0.257                  | 0.257                  |
| R-squared   | 0.818                  | 0.818                  | 0.818                  | 0.818                  |
| Corr-squared  | 0.176                  | 0.177                  | 0.173                  | 0.174                  |
| Nobs  | 2730                   | 2730                   | 2730                   | 2730                   |
| LogL  | -1967.897              | -1966.821              | -1971.493              | -1970.603              |
| LR-test joint significance                                |                        |                        |                        |                        |
| spatial fixed effects, degrees of freedom and probability | 2447.722,<br>91, 0     | 2525.734,<br>91, 0     | 2287.165,<br>91, 0     | 2397.851,<br>91, 0     |

Table 5 presents the results of panel regressions with two-way fixed effects. In Column 1 of table 5 the LR-test (2447.722, P=0) indicates that the fixed effect is supported in preference to a random effects specification. The positive and significant spatial coefficient implies that the spatial model is to be preferred to a non-spatial model. All the control variables have expected sign and significance except land inequality or income inequality which demonstrates a positive (insignificant) effect contrary to what one would expect. In Column 2 of Table 5, we replaced the land inequality variable by the income inequality variable. Yet, we obtain a positive (insignificant) effect of income inequality on HR.

The encouraging aspect of our results is that not only economic and socioeconomic aspects within a country, but also its geographic position can alter its ability to raise standards of HR performance relative to international norms and standards. However, the significance of a spatially-lagged dependent variable would be misleading if it picked up the effects of omitted spatially explanatory variables. For instance, one would expect that conflicts spread in a spatial manner especially along borders. And if we did not take it into account, our regression result could incorrectly suggest the existence of a spillover mechanism in the dependent variable.

**Table 6: Spatial Durbin Model, spatial and time period fixed effects (1981-2010)**

| Determinants                        | (1)   | (2)  | (3)   | (4)  |
|-------------------------------------|---|--|---|--|
|                                     | Spatial and time period fixed effects<br>W1= Dist | Spatial and time period fixed effects (Bias-corrected)<br>W1= Dist | Spatial and time period fixed effects<br>W2=Popdist | Spatial and time period fixed effects (Bias-corrected)<br>W2=Popdist |
| Domestic conflict                   | -0.089***<br>(-13.182)                            | -0.089***<br>(-13.404)   | -0.090***<br>(-13.735)                              | -0.091***<br>(-13.447)   |
| Ln GDP                              | 0.233***<br>(4.195)                               | 0.230***<br>(4.054)  | 0.305***<br>(5.567)                                 | 0.305***<br>(5.441)  |
| Polity                              | 0.044***<br>(15.901)                              | 0.044***<br>(15.571)   | 0.045***<br>(16.080)                                | 0.045***<br>(15.717)   |
| Ln land inequality                  | -0.002<br>(-1.252)                                | -0.002<br>(-1.278)   | -0.002<br>(-1.210)                                  | -0.002<br>(-1.225)   |
| W*Domestic conflict                 | 0.007<br>(0.569)                                  | 0.010<br>(0.757)   | 0.027*<br>(1.787)                                   | 0.030*<br>(1.942)  |
| W*Ln GDP                            | 0.402***<br>(3.966)                               | 0.390***<br>(3.765)  | 0.072<br>(0.879)                                    | 0.059<br>(0.702)   |
| W*Polity                            | -0.011*<br>(-1.930)                               | -0.012 **<br>(-2.108)  | 0.000<br>(0.008)                                    | -0.001<br>(-0.216)   |
| W*Ln land inequality                | 0.015***<br>(4.659)                               | 0.015***<br>(4.497)  | 0.018***<br>(4.962)                                 | 0.018***<br>(4.787)  |
| W*dep. var.                         | 0.158***<br>(5.444)                               | 0.187***<br>(6.545)  | 0.171***<br>(5.584)                                 | 0.205***<br>(6.795)  |
| R-squared                           | 0.821   | 0.821  | 0.819   | 0.819  |
| Corrected R-squared                 | 0.190   | 0.190  | 0.186   | 0.186  |
| Nobs                                | 2730  | 2730   | 2730  | 2730   |
| Log L                               | -1945.525   | -1945.525  | -1956.772   | -1956.772  |
| Wald test spatial lag               | 45.086, 0   | 42.995, 0  | 29.327, 0   | 28.324, 0  |
| LR test spatial lag                 | 44.745, 0   | 44.749, 0  | 29.443, 0   | 29.555, 0  |
| Wald test spatial error             | 45.838, 0   | 42.941, 0  | 28.620, 0   | 26.645, 0  |
| LR test spatial error               | 45.800, 0   | 45.803, 0  | 28.773, 0   | 28.804, 0  |
| Direct effect, Domestic conflict    | -0.089***<br>(-13.274)                            | -0.089***<br>(-13.471)   | -0.090***<br>(-13.931)                              | -0.091***<br>(-13.465)   |
| Indirect effect, Domestic conflict  | -0.006<br>(-0.394)                                | -0.007<br>(-0.444)   | 0.012<br>(0.740)                                    | 0.014<br>(0.800)   |
| Total effect, Domestic conflict     | -0.095***<br>(-5.839)                             | -0.097***<br>(-5.303)  | -0.077***<br>(-4.212)                               | -0.076***<br>(-3.858)  |
| Direct effect, Ln GDP               | 0.247***<br>(4.483)                               | 0.245***<br>(4.397)  | 0.309***<br>(5.564)                                 | 0.309***<br>(5.484)  |
| Indirect effect, Ln GDP             | 0.509***<br>(4.665)                               | 0.511***<br>(4.263)  | 0.150*<br>(1.653)                                   | 0.150<br>(1.468)   |
| Total effect' Ln GDP                | 0.756***<br>(6.604)                               | 0.757***<br>(6.298)  | 0.460***<br>(4.608)                                 | 0.460***<br>(4.208)  |
| Direct effect, Polity               | 0.044***<br>(15.779)                              | 0.044***<br>(15.548)   | 0.045***<br>(16.382)                                | 0.045<br>(14.921)  |
| Indirect effect, Polity             | -0.004<br>(-0.715)                                | -0.005<br>(-0.830)   | 0.009<br>(1.081)                                    | 0.009<br>(1.014)   |
| Total effect, Polity                | 0.039***<br>(5.531)                               | 0.038***<br>(5.267)  | 0.055***<br>(6.223)                                 | 0.054***<br>(5.786)  |
| Direct effect, Ln land inequality   | -0.002<br>(-1.037)                                | -0.001<br>(-0.970)   | -0.002<br>(-1.020)                                  | -0.002<br>(-0.990)   |
| Indirect effect, Ln land inequality | 0.017***<br>(4.708)                               | 0.018***<br>(4.556)  | 0.021***<br>(4.998)                                 | 0.021***<br>(4.670)  |
| Total effect, Ln land inequality    | 0.015***<br>(4.046)                               | 0.016***<br>(3.921)  | 0.019***<br>(4.678)                                 | 0.019***<br>(4.359)  |

LeSage and Pace (2009) advocate models that include both endogenous interaction effects (spatially lagged dependent variable) and exogenous interaction effects (spatially lagged independent variable). Hence in Table 6 we present results from a Spatial Durbin specification. As

before we used both distance-only and distance and population-based weighting scheme. Moreover, we also present bias-corrected results (see Lee and Yu, 2010a; 2010b).

Column 1 of Table 6 rejects the hypothesis that a spatial Durbin model can be simplified to the spatial lag model (Wald test: 45.086,  $p = 0.00$ ; LR test: 44.745,  $p=0.00$ ) or to spatial error model (Wald test: 45.838,  $p = 0.00$ ; LR test: 45.800). Similarly, the other columns of Table 6 also rejects the spatial lag model and spatial error model in favour of a spatial Durbin model. In all specifications of Table 6, we found the coefficient of the spatially lagged dependent variable to be positive and significant, which tends to reinforce our main finding of size and proximity effects for human rights performance.

Since the spatial Durbin model specification was found to be more appropriate, we identify the coefficients of the explanatory variables in the non-spatial model (see Section 3.2) as biased. Although it is tempting to compare the coefficient estimates in the non-spatial model with their counterparts in the two-way spatial Durbin model, any such comparison would not be valid (see Elhorst, 2010; Corrado and Fingleton, 2012). While the parameter estimates in the non-spatial model can be seen as representing the marginal effect of a change in the income level on level of human rights, the coefficients in the spatial Durbin model do not. Hence in Table 6 we report the direct and indirect effect estimates of the explanatory variables (LeSage and Pace, 2009). In the bias corrected two-way fixed effect spatial Durbin model (column 2 of Table 6) where a distance only weighting was used, the direct effect of domestic conflict appears to be -0.089. This means that the coefficient of domestic conflict of -0.094 in the non-spatial model is underestimated by 5.6%. Since the direct effect of domestic conflict is -0.089 and its co-efficient estimate is -0.089, its feedback effect therefore amounts to a relatively small reduction of 0.22%. On the other hand, while the indirect effects (spillover effect) in the non-spatial model are set to zero by construction, the indirect effect of a change in the domestic conflict variable in the spatial Durbin model appears to be 8.38% of the direct effect. Though this indirect effect is not significant, we find a significant indirect effect in the cases of GDP per capita and land inequality. This can be interpreted as a change in income or land inequality in a particular country affecting not only human rights in that country itself, but also that of its neighbouring countries. The bias corrected two-way fixed effect spatial Durbin model, where distance and population based weighting was used (column 4 of table 5), gives us qualitatively similar results except that we find an insignificant indirect effect for GDP per capita.

As a final robustness check, presented in Table 7 below, the land inequality variable was replaced by the income inequality variable. All specifications of Table 7 substantiate the existence of a spillover mechanism in the dependent variable. Hence the results shown in Table 7 tend to reinforce our two main findings: firstly, that 'beacon' countries can play an important role in disseminating good HR practice to neighbours; and second, a large neighbour can have more influence on a country's level of human rights than a smaller neighbour.

**Table 7: Spatial Durbin Model, spatial & time period fixed effect (1980-2010), robustness check**

| Determinants                          | (1)   | (2)   | (3)   | (4)   |
|---------------------------------------|---|---|---|---|
|                                       | Spatial and time period fixed effects<br>W1= Dist | Spatial and time period fixed effects<br>(Bias-corrected)<br>W1= Dist | Spatial and time period fixed effects<br>W2=Popdist | Spatial and time period fixed effects<br>(Bias-corrected)<br>W2=Popdist |
| Domestic conflict                     | -0.093 ***<br>(-14.120)                           | --0.093***<br>(-13.807)   | -0.095***<br>(-14.458)                              | -0.095***<br>(-14.148)  |
| Ln GDP                                | 0.257 ***<br>(4.631)                              | 0.254***<br>(4.475)   | 0.350***<br>(6.432)                                 | 0.349***<br>(6.270)   |
| Polity                                | 0.0442 ***<br>(15.805)                            | 0.044***<br>(15.489)  | 0.045***<br>(15.944)                                | 0.045***<br>(15.589)  |
| Ln income inequality                  |   | 0.004<br>(0.921)  | 0.002<br>(0.437)                                    | 0.002<br>(0.388)  |
| W*Domestic conflict                   | -0.010<br>(-0.739)                                | -0.007<br>(-0.510)  | 0.023<br>(1.523)                                    | 0.026*<br>(1.714)   |
| W*Ln GDP                              | 0.405 ***<br>(3.978)                              | 0.392***<br>(3.768)   | 0.064<br>(0.774)                                    | 0.052<br>(0.622)  |
| W*Polity                              | -0.016 ***<br>(-2.829)                            | -0.018***<br>(-2.972)   | 0.004<br>(0.696)                                    | 0.003<br>(0.422)  |
| W* Ln income inequality               | 0.040 ***<br>(3.741)                              | 0.040***<br>(3.605)   | 0.058 ***<br>(4.258)                                | 0.057***<br>(4.118)   |
| W*dep. var.                           | 0.162 ***<br>(5.595)                              | 0.191***<br>(6.700)   | 0.178***<br>(5.801)                                 | 0.215***<br>(7.167)   |
| R-squared                             | 0.820   | 0.821   | 0.819   | 0.819   |
| Corrected R-squared                   | 0.188   | 0.188   | 0.183   | 0.183   |
| Nobs                                  | 2730  | 2730  | 2730  | 2730  |
| Log L                                 | -1947.550   | -1947.551   | -1959.630   | -1959.742   |
| Wald test spatial lag                 | 38.737, 0   | 36.841, 0   | 22.000, 0   | 21.540, 0   |
| LR test spatial lag                   | 38.541, 0   | 38.541, 0   | 21.850, 0   | 21.724, 0   |
| Wald test spatial error               | 40.754, 0   | 38.162, 0   | 22.237, 0   | 20.880, 0   |
| LR test spatial error                 | 40.629, 0   | 40.629, 0   | 22.033, 0   | 21.804, 0   |
| Direct effect, Domestic conflict      | -0.093 ***<br>(-14.305)                           | -0.094***<br>(-14.117)  | -0.095***<br>(-14.822)                              | -0.094***<br>(-13.973)  |
| Indirect effect, Domestic conflict    | -0.028**<br>(-1.894)                              | -0.030*<br>(-1.855)   | 0.006<br>(0.391)                                    | 0.006<br>(0.355)  |
| Total effect, Domestic conflict       | -0.122 ***<br>(-7.506)                            | -0.124***<br>(-7.323)   | -0.088***<br>(-4.719)                               | -0.088***<br>(-4.437)   |
| Direct effect, Ln GDP                 | 0.272 ***<br>(5.193)                              | 0.271***<br>(4.716)   | 0.354***<br>(6.721)                                 | 0.353***<br>(6.216)   |
| Indirect effect, Ln GDP               | 0.522 ***<br>(4.567)                              | 0.528***<br>(4.465)   | 0.146<br>(1.619)                                    | 0.162<br>(1.579)  |
| Total effect' Ln GDP                  | 0.795 ***<br>(6.620)                              | 0.800***<br>(6.445)   | 0.500***<br>(5.003)                                 | 0.515***<br>(4.566)   |
| Direct effect, Polity                 | 0.044 ***<br>(15.464)                             | 0.044***<br>(15.988)  | 0.045***<br>(15.948)                                | 0.045***<br>(16.187)  |
| Indirect effect, Polity               | -0.011*<br>(-1.672)                               | -0.011<br>(-1.588)  | 0.0153*<br>(1.842078)                               | 0.016<br>(1.824)  |
| Total effect, Polity                  | 0.033 ***<br>(4.598)                              | 0.033***<br>(4.415)   | 0.061***<br>(6.842)                                 | 0.061***<br>(6.589)   |
| Direct effect, Ln income inequality   | 0.006<br>(1.267)                                  | 0.006<br>(1.209)  | 0.003<br>(0.669)                                    | 0.003<br>(0.713)  |
| Indirect effect, Ln income inequality | 0.048 ***<br>(3.879)                              | 0.048***<br>(3.679)   | 0.070***<br>(4.248)                                 | 0.071***<br>(4.030)   |
| Total effect, Ln income inequality    | 0.055 ***<br>(4.106)                              | 0.054***<br>(4.005)   | 0.073***<br>(4.287)                                 | 0.075***<br>(4.106)   |

## 5. Summary and Conclusions

In this study we have turned our attention to the possibility that neighbourhood effects might exist in a given country's achievement of relative progress in human rights. Such an analysis is not without its technical difficulties, due to the wide variety of countries involved and the long-run nature of the relationships that we have described.

We have updated a comprehensive index of HR performance originally developed and used by Landman and Larizza (2009), and drawn on a number of other studies, in order to build empirical models capable of estimating the spatial dimensions of HR performance. Using a relatively simple spatial weighting model we initially compared each country's HR performance with what would be predicted by regression on a weighted average of its neighbours' performance. Our results tend to confirm earlier findings (Mitchell and McCormick 1988; Poe and Tate 1994; Poe, Tate and Keith, 1999; Landman 2005a, 2005b; Landman and Larizza, 2009; Camp Keith 2012) that HR performance appears to be linked to other socioeconomic variables. Although we also find that this relationship is limited in terms of income/GDP and is probably only robust in the longer term. While (lagged) GDP per capita may be suggestive that causation is primarily from income to human rights, we cannot rule out the possibility of bi-directional causality.

We also find clear regional patterns in HR performance that appear to go beyond what can be explained by GDP patterns alone. These patterns are picked up by including dummy variables for the world's major regions, as well as by the more explicit use of spatial econometric estimation techniques. The inclusion of simple cultural variables only mildly reduces the significance of the spatial terms, indicating that (within a country) there may be an interaction effect between the pure economic and the somewhat arbitrary geographic mechanisms involved. Notwithstanding the recent history of political liberalisation and varying degrees of democratization across broad groups of countries, such as the former Soviet Bloc, Latin America, parts of Asia, and most recently North Africa, we believe that this is the first study to attempt to disentangle the economic from the geographic factors involved.

By the addition of the spatial context to the study of relative international HR performance, we believe our results contribute in a novel way to the wide body of literature on international norms in *de facto* measures of human rights performance. Despite the economic costs of implementing formal law to promote convergence with international HR norms, convergence may nonetheless occur via a country's proximity to good neighbours, even in the world's poorer and more troubled regions. Taken together, our findings tend to suggest that 'beacon' countries can play a role in disseminating good HR practice to neighbours, at least in terms of relative HR performance. Finally, the regional approaches to economic development frequently adopted by multilateral institutions and aid agencies may well, albeit indirectly, encourage improvements in HR performance in countries not specifically party to any formal bilateral or multilateral agreement.



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